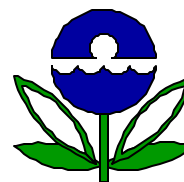


U. S. Environmental Protection Agency
SUPERFUND PROPOSED PLAN FACT SHEET
Cascade Park Gasification Plant/Cascade Landfill
Removal Action Memorandum



Tallahassee, Leon County, Florida

March 2002

EPA is recommending a Removal Action involving excavation and disposal of contaminated soil and sediment from the former manufactured gas plant (MGP) site located immediately south of Bloxham Street between Monroe and Gadsden Streets in downtown Tallahassee, Florida (Figure 1). In 1971 the former MGP, Centennial Field, and the property east of Gadsden were designated as "Cascades Park" by the City.

This fact sheet briefly summarizes the results of the Engineering Evaluation and Cost Analysis (EE/CA) conducted by the City of Tallahassee (COT), the Florida Department of Environmental Protection (FDEP), and the Florida Department of Management Services (FDMS) under an agreement with EPA.

The complete EE/CA is available for review at the repository at the Leroy Collins Leon County Public Library, 200 West Park Avenue, Tallahassee, Florida 32301.

EPA anticipates negotiating a new agreement with the COT, FDEP, and FDMS for conducting the Removal Action.

*Terms in **bold** are defined in a glossary on page 6 of this fact sheet.*

EPA Solicits Comments on Cleanup Plan

The U.S. Environmental Protection Agency (EPA) is issuing this **Proposed Plan** for the Tallahassee former manufactured gas plant (MGP) site in Tallahassee, Florida, to provide an opportunity for public comment on the recommended **Removal Action** for addressing soil, sediment, and ground water contamination at the site. EPA will select a final cleanup plan after considering public comments on this Proposed Plan.

EPA issues this Proposed Plan under the **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)**, commonly referred to as Superfund. Pursuant to 40 CFR Part 300 §§ 415(m) and 820(a), a public comment period will be held from March 25, 2002, through April 24, 2002, during which EPA will accept written comments on this Plan. If requested, EPA may extend the comment period another 15 days. In addition, EPA has scheduled a public meeting on April 2, 2002, starting at 7:00 p.m. to answer questions and receive oral comments on the Proposed Plan. The meeting will be in the Myers Park Community Center, Tallahassee, Florida.

EPA has established an **Administrative Record File** containing information considered in preparing this Proposed Plan, a copy of which has been placed in the Information Repository below:

Leroy Collins
Leon County Public Library
200 West Park Avenue
Tallahassee, Florida 32301

After addressing comments from the public, State, and local officials, EPA will document the final Removal Action decision in an **Action Memorandum** and place a copy in the Information Repository, noted above. EPA will publish a notice advising of the final Action Memorandum.

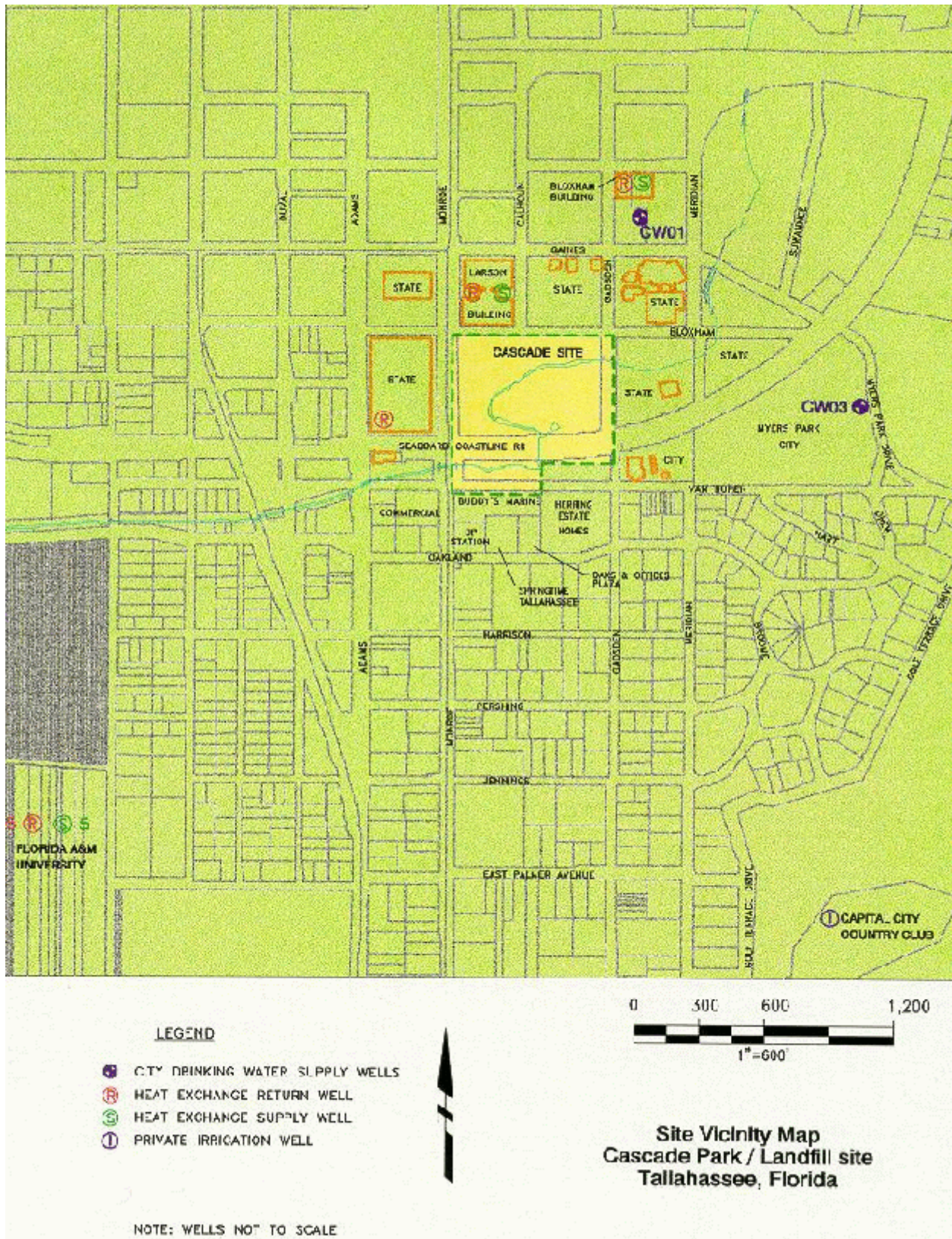
Questions about the Cascade Park Gasification Plant/Cascade Landfill should be forwarded to EPA at the address below:

Mark Fite
Remedial Project Manager
South Site Management Branch
61 Forsyth Street, SW
Atlanta, Georgia 30303
1-800-435-9234

EPA Hosts Public Meeting

EPA will host a public meeting on Tuesday, April 2, 2002, in the Myers Park Community Center beginning at 7:00 p.m. to give community members an opportunity to comment on EPA's proposed Removal Action.

Figure 1. Site Vicinity Map



Site Background and History

The Cascade Park Gasification Plant/Cascade Landfill Site encompasses the former Manufactured Gas Plant (MGP), the former Centennial Field, and the Cascade Landfill (Figure 2).

The MGP parcel and former Centennial Field are approximately 7.84 acres in size, and occupy the area immediately south of Bloxham Street between South Monroe and Gadsden Streets. The MGP operated from 1895 through the late 1950s, when the city began using natural gas and propane as a fuel source. The former Centennial Field held community games from 1926 until its closure in the early 1970s.

The Cascade Landfill is between one and two acres in size and is located to the south of the railroad tracks. The Cascade Landfill reportedly operated between 1928 and 1936 and was initially used for the disposal of tree limbs, stumps, and roots. The landfill, reportedly, also received construction, automobile, and other debris and ash from the former City of Tallahassee incinerator that was located to the east of the MGP.

Cascade Creek flows through Cascade Park (Figure 1). It begins approximately two miles north of the Site (near Leon High School), enters the Site in the northeastern corner, and exits the Site near the southwestern corner, between Centennial Field and Cascade Landfill, finally flowing into Lake Munson. Cascade Creek, which formerly flowed to the immediate west of the MGP, was rerouted to its present position (its approximate original course) in the early 1970s. Portions of Cascade Creek on the

Site are lined with concrete.

The MGP processed bituminous coal in a generator in brick-lined steel vessels. Steam and light fuels or carbonaceous oil were applied to the coal to produce "blue gas" for lighting purposes. The manufactured gas, which contained significant impurities, was then condensed, distilled, cooled, and purified before being pumped to gas holders for distribution to customers.

The by-products included light and heavy oils, coal tars, sludges, ash, ammonia, cyanide, and lime wastes. Some of the by-products were re-used, while others were sold. Representative historical practices indicate that some of the waste was discharged to on-site shallow pits, lagoons, or land filled. Over time, these improperly discharged wastes have affected the soil and ground water. Many of the wastes are now recognized as potentially hazardous.

Waste typically associated with MGP operations are characterized by the following chemicals:

- volatile organic compounds
- polynuclear aromatic hydrocarbons
- metals
- ammonia, nitrate, cyanide, sulfates
- phenolic compounds

Preliminary studies conducted at the Site by the FDEP, COT, and the EPA have confirmed the presence of some of the chemicals listed above in the soil and ground water.

Final EE/CA Report Available for Review

In order to promote the cleanup of the former MGP site and the landfill and expedite redevelopment, COT, FDEP, and FDMS agreed with EPA

to conduct an *Engineering Evaluation/Cost Analysis*

(EE/CA). The purpose of the EE/CA was to identify the nature and extent of contamination at the site and to develop and evaluate options for site cleanup.

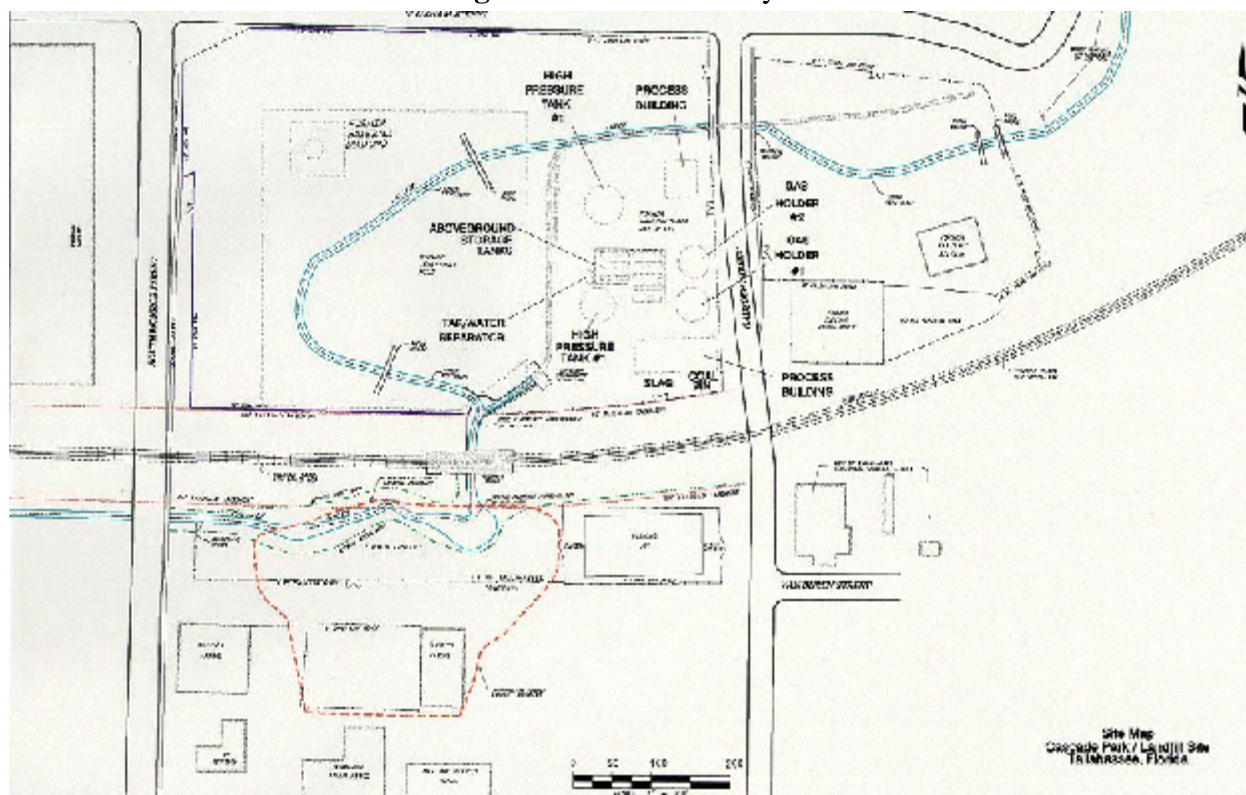
The EE/CA field activities were conducted at the site from August 1999 to August 2000. A copy of the Final EE/CA Report has been placed in the Administrative Record file at the Leon County Public Library, and EPA is seeking public comment on both the EE/CA Report and EPA's Proposed Plan for the site. A brief summary of the EE/CA is provided below. Please see the EE/CA Report for further details.

Field investigation activities performed as part of the EE/CA included exploratory test trenching, a soil gas survey, monitoring well installation, and soil, sediment, surface water, and ground water sampling. Former plant operations resulted in the contamination of surface and subsurface soil, creek sediments, and ground water. The nature and extent of contamination in various media at the former MGP and landfill sites are summarized below.

Surface Soil

The surface soil investigation began with a soil gas survey. Seventy *GoreSorber*® modules were installed to depths down to three feet below ground surface (bgs). Samples were analyzed for polynuclear aromatic hydrocarbons (PAHs), chlorinated solvents, and benzene, toluene, ethylbenzene, and xylene (BTEX). The soil gas survey detected significant levels in the vapor phase.

Figure 2. Former Site Layout



In addition, nine surface soil samples were collected from three inches to one foot bgs. These samples were analyzed for a number of compounds, including volatile and semi-volatile organic compounds and metals. In addition, eight samples were analyzed for dioxin/furans. In the central and southern portions of the former MGP parcel, MGP waste was observed, and PAHs and BTEX were elevated.

Subsurface Soil

The subsurface soil investigation consisted of nine exploratory test pit excavations (generally 8 ft. long, 3 ft. wide, and 4 to 3 ft. deep), visual observation of soil cores from monitoring well installations, and 75 soil samples (4 to 66 feet bgs). On the former MGP parcel, MGP-related waste contamination was observed

and identified with odor indicators. The subsurface soil samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and selected soil samples were analyzed for metals and cyanide.

Analytical results showed high concentrations of PAHs and BTEX in the central and southern portions of the former MGP parcel, while PAHs were slightly elevated on the landfill. Subsurface soil impacts extend to a depth of 40 feet in the west central portion of the former MGP parcel and 15 feet in the surrounding area.

Sediment/Surface Water

To investigate Cascade Creek, eight sediment and eight surface water samples were collected along the length of the creek. These samples

were analyzed for VOCs, SVOCs, metals and cyanides. Analytical results showed no elevated concentrations in surface water. A single non-carcinogenic PAH, acenaphthene, was elevated in one sediment sample.

Ground Water

Hydrogeologic units beneath the site are surface sediments, the intermediate aquifer, and the Floridan Aquifer. The sediments and intermediate aquifer range from 28 to 62 feet thick. Below that is the Floridan Aquifer. Ground water occurs at a depth of 65 feet bgs. The former MGP parcel is overlain by 1 to 2 ft. of fill except in the central and southern areas where the fill appears to have been eroded away.

The ground water investigation was progressive, beginning with

shallow wells, then intermediate wells, and finally deep (Floridan) wells. Twenty-nine monitoring wells were installed at shallow, intermediate, and Floridan depths. In addition, ground water samples were collected at 33 soil boring locations. Based on ground water analytical results, the surficial aquifer was found to be impacted by MGP waste, including PAHs and BTEX. Because of a large vertical hydraulic gradient at the site, affected ground water seems to be moving downward and appears to be limited to the MGP site.

Streamlined Risk Evaluation

A streamlined risk evaluation was conducted to evaluate the risks posed by the site if no action were taken to address contamination detected at the site. The first step in evaluating potential risks was to identify chemicals of potential concern (COPCs) for soil, ground water and sediment at the site. To identify COPCs, four Areas of Concern (AOCs) were identified: the former landfill (AOC1), the former MGP parcel (AOC2), the former Centennial Field (AOC3) and the east of Gadsden Street property (AOC4).

The contaminants of concern for the site are shown in Table 1. Based on the risk evaluation, EPA determined that actual or threatened releases of hazardous substances from the site, if not addressed by EPA's removal action, may present a current or potential threat to public health and the environment.

In order to develop soil cleanup numbers for removal actions at the site, Remedial Goal Options (RGOs) were calculated for three scenarios:

Construction worker for all AOCs, commercial/industrial for AOC1 only, and Recreational/Park for AOC2, AOC3, and AOC4. In addition, the Soil Cleanup Target Levels (SCTLs) calculated by FDEP for "leachability to ground water" were also considered. The most conservative RGO was then selected for each chemical at each area of concern. The remedial goals for soil are shown in Table 1.

For groundwater, the more stringent of the Federal or State Primary maximum contaminant levels (MCLs) were identified as potentially *Applicable or Relevant and Appropriate Requirements (ARARs)* for the site. In addition, COT, FDEP, and FDMS have opted to use ground water guidance concentrations as performance standards for ground water response actions (Table 1). EPA does not consider SCTLs or other guidance concentrations to be *ARARs*, but these criteria are *To Be Considered* in the selection of cleanup levels for the site.

EPA has established a target risk range for Superfund cleanups of between 10^{-4} and 10^{-6} excess lifetime cancer risk. A cancer risk of 1×10^{-6} means that an individual has an additional 1 in 1,000,000 chance of developing cancer as a result of site-related exposure during a 70 year lifetime. EPA's target risk for non-cancer related health effects is quantified as a hazard index (HI) of 1.0. The RGOs selected for the Cascade site are at or below a 10^{-6} cancer risk and an HI of 1.0.

Summary of Removal Action Alternatives

In accordance with the National Contingency Plan (NCP) and EPA's

EE/CA guidance, Removal Action alternatives were developed for surface soil, subsurface soil, sediment and ground water at AOC2 and AOC 3 and for surface soil, subsurface soil, and sediment at AOC1. Because no chemicals were detected exceeding the RGOs for AOC3 (east of Gadsden Street), no action is proposed for this area.

Excavated soil from any alternative will be sent offsite to a Resource Conservation and Recovery Act Subtitle D Landfill.

AOC2/AOC3

Alternative 1: No action. No removal action would be taken.

Alternative 2: Asphalt surface cap and sediment removal. An asphalt cap would be constructed over the former MGP parcel. In addition, impacted sediment would be removed from Cascade Creek from Gadsden Street to just south of the railroad bridge.

Alternative 3: Excavate 24" of surface soil, and sediment removal. The top 24-inches of soil would be excavated and backfilled with clean compacted fill. In addition, impacted sediment would be removed from Cascade Creek from Gadsden Street to just south of the railroad bridge.

Alternative 4: Asphalt cap, pump-and-treat, and sediment removal. An asphalt cap would be constructed over the former MGP parcel and pump-and-treat would be used to contain impacted ground water onsite. In addition, impacted sediment would be removed from Cascade Creek from Gadsden Street to just south of the railroad bridge.

Alternative 5: Source excavation

(15' and 40'), MNA, sediment removal, Option A/Option B.

Excavate 40 feet of soil in the west central portion of the former MGP parcel and excavate 15 feet of soil in the surrounding area. In addition, monitored natural attenuation (MNA) would be used to address residual contamination. Also, impacted sediment would be removed from Cascade Creek from Gadsden Street to just south of the railroad bridge. Option A entails backfilling the excavation with “clean” soil. For Option B, an impermeable liner would be installed to allow the excavation to be used for stormwater retention.

Alternative 6: Source excavation (15' and 40'), Pump-and-Treat, MNA, and sediment removal.

Similar to Alternative 5, with the addition of pump-and-treat to contain impacted ground water onsite.

Alternative 7: Excavate 24" of surface soil, chemical/ biological treatment, and sediment removal.

The top 24-inches of soil would be excavated and backfilled with clean compacted fill. In addition, chemical/biological treatment of shallow soil and ground water would occur. Also, sediment would be removed from Cascade Creek from Gadsden Street to just south of the railroad bridge.

AOC 1

Alternative 1: No action. No removal action would be taken.

Alternative 2: Asphalt surface cap and embankment and creek liner.

Construction of an asphalt surface cap and installation of a HDPE liner across the landfill embankment. Removal of affected sediments and construction of a concrete channel

for Cascade Creek, from the south of the railroad to Monroe Street.

Alternative 3: Clay surface cap and embankment and creek liner.

Installation of a 24-inch clay and sod cap. Installation of a HDPE liner across the landfill embankment. Removal of affected sediments and construction of a concrete channel for Cascade Creek, from the south of the railroad to Monroe Street.

Alternative 4: Landfill excavation.

Excavation of the landfill and adjacent creek.

Analysis of Removal Action Alternatives

The removal action alternatives were evaluated according to seven criteria. Specifically, *Overall Protection of Public Health and the Environment, Compliance with ARARs, Long-term Effectiveness and Permanence, Reduction of Toxicity, Mobility or Volume through Treatment, Short-term Effectiveness, Implementability, and Cost*. A detailed analysis is provided in the EE/CA Report.

The remaining two criteria, *State Acceptance* and *Community Acceptance*, will be evaluated based on comments received during the comment period and documented in the Action Memorandum.

EPA's Recommended Removal Action

Based on the Administrative Record File and the comparative evaluation of alternatives, EPA recommends the following alternatives for addressing contamination at the site.

Alternative 5 for AOC2/AOC3: Source excavation (15' and 40'), MNA, sediment removal,

Option A/Option B. This alternative will remove most of the impacted soil, approaching 100%. In addition, MNA will result in any residual contamination disappearing with time. Also, impacted sediments will be removed and disposed offsite. This alternative is illustrated in Figure 3.

Alternative 3 for AOC1. Clay surface cap and embankment and creek liner.

This alternative prevents direct exposure and minimizes soil leaching of COPCs to ground water, prevents further erosion of the embankment, and prevents potential exposure to soil and sediment. This alternative is illustrated in Figure 3.

The overall cost for Alternative 5, Option A is \$5,720,234 and with Option B, \$5,155,242. This total includes MNA. The overall cost for Alternative 3 is \$1,250,051, for a combined total cost of about \$7 million.

Glossary

Applicable or Relevant and Appropriate Requirements

(ARARs): Federal or more stringent State standards which relate to contaminants or circumstances similar to those found at a Superfund site. These regulations provide the basis for the cleanup levels and other cleanup requirements at Superfund sites.

Aquifer: Underground formation of sand, soil, rock, or gravel that can store and supply ground water.

Comprehensive Environmental Response, Compensation, and

Liability Act (CERCLA): The law which provides authorization and funding for EPA to address contamination at abandoned or unregulated hazardous waste sites.

Engineering Evaluation and Cost Analysis (EE/CA): Study conducted as part of the Removal process to collect necessary data to determine the type and extent of contamination at the site and evaluate alternatives for addressing this contamination.

National Contingency Plan: The regulation that implements the Superfund law and prescribes how cleanup activities will be conducted.

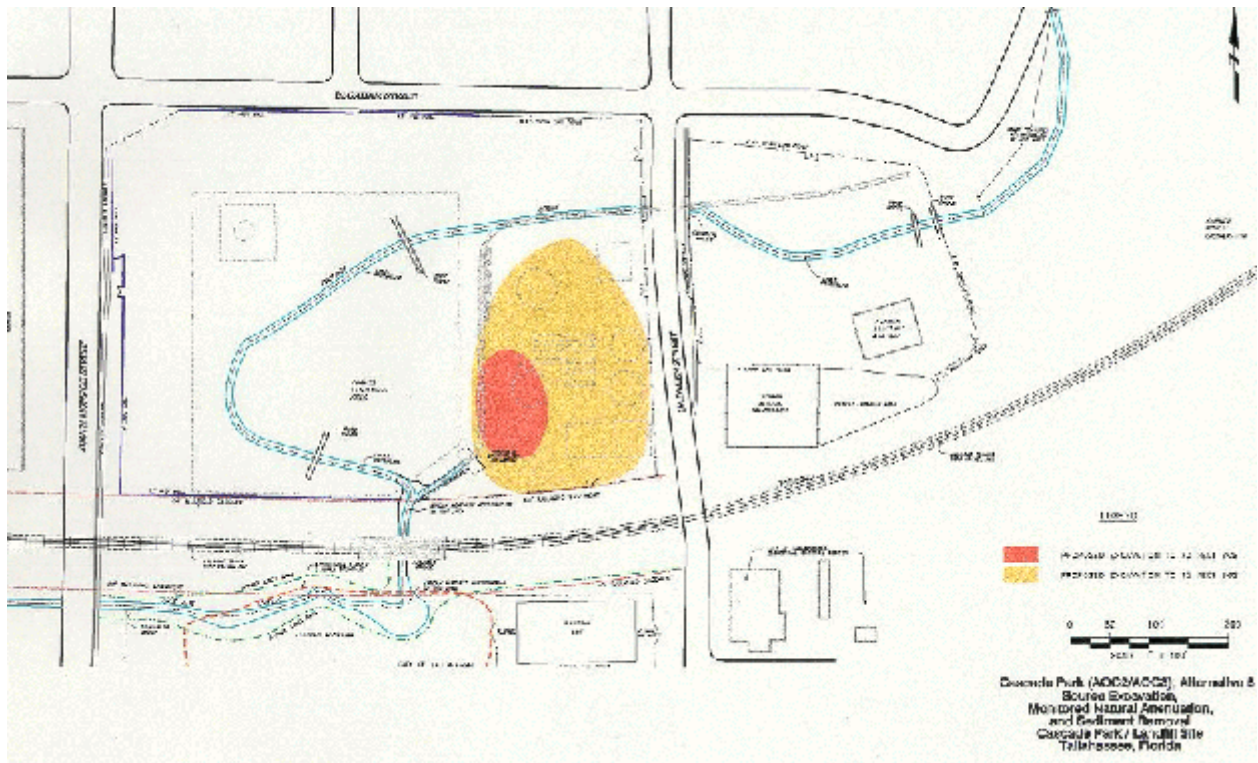
Proposed Plan: Superfund public participation fact sheet which summarizes the preferred cleanup strategy and rationale and a summary of the RI/FS.

Removal Action Memorandum: Legal document that formally selects the cleanup plan for the site.

Superfund: The trust fund established to finance the cleanup of abandoned hazardous waste sites under CERCLA. This is also the common term used to refer to the CERCLA statute.

To Be Considered: Federal and state non-promulgated standards, policies, and guidance that are not ARARs, but may be considered in determining the action to be taken.

Figure 3. Alternative 5 (AOC2 & AOC3)



Ground Water: Water found beneath the earth's surface that fills the pores between sand, soil, or gravel.

Landfill (ACOT), Alternative 3
Clay Surface Cap and Drainage System and Creek Lines
Cape Coral Park 7 Landfill Site
Tallahassee, Florida

Table 1 - Remedial Goals

Chemical	Soil Remedial Goal, mg/kg		Ground Water Remedial Goal, ug/l
	AOC1 ^a	AOC2 ^a	
Benzene		0.007 ^b	1 ^c
Toluene		0.2 ^f	40 ^d
Ethylbenzene		0.2 ^f	30 ^d
Xylene		0.152 ^f	20 ^d
Benzo(a)anthracene	4.9	2.6	0.2 ^d
Benzo(a)pyrene	0.51	0.26	0.2 ^c
Benzo(b)fluoranthene	4.7	2.6	0.2 ^d
Benzo(k)fluoranthene	50.7	26	0.5 ^d
Chrysene	77 ^b	253	4.8 ^d
Indeno(1,2,3-cd)pyrene	5.1	2.6	0.2 ^d
Dibenz(a,h)anthracene	0.51	0.26	0.2 ^d
Acenaphthene		2.1 ^b	20 ^d
Acenaphthylene		27 ^b	210 ^d
Fluoranthene		30 ^g	280 ^d
Fluorene		30 ^g	280 ^d
1-Methylnaphthalene		2.2 ^b	20 ^d
2-Methylnaphthalene		6.1 ^b	20 ^d
Naphthalene		1.7 ^b	20 ^d
Phenanthrene		30 ^g	210 ^d
Pyrene		30 ^g	210 ^d
1,2,4-Trimethylbenzene			10 ^d
1,3,5-Trimethylbenzene			10 ^d
Arsenic	3.71	3.25	10 ^e
Barium		123 ^f	2000 ^c
Cadmium	8 ^b		5 ^c
Chromium	38 ^b	17.64 ^f	100 ^c
Lead	921	162.84 ^f	15 ^c

In order to facilitate written comments, EPA has attached this form to the fact sheet. Please provide comments with this easy to use form.

CASCADE PARK GASIFICATION PLANT/CASCADE LANDFILL
PUBLIC COMMENT SHEET

Use this space to write your comments.

Your input on the Proposed Plan for the Cascade Park Gasification Plant/Cascade Landfill Site is important in helping EPA select a final remedy for the site. You may use the space below to write your comments, then fold and mail. Additional comments may be included with this form.

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Name _____
Address _____
Phone # _____



**CASCADE PARK GASIFICATION PLANT/CASCADE LANDFILL
PUBLIC COMMENT SHEET**

Fold on dashed lines, staple, stamp and mail

Name _____
Address _____
City _____ State _____
Zip Code _____

Place
stamp
here

Mark Fite, Remedial Project Manager
South Site Management Branch
61 Forsyth Street, SW
Atlanta, Georgia 30303